

Bellwork: 5/2/13

Simplify each radical expression:

$$1) \frac{5}{5-2\sqrt{5}} \cdot \frac{5+2\sqrt{5}}{5+2\sqrt{5}} \quad 2) \frac{6-\sqrt{2}}{1+\sqrt{3}} \cdot \frac{(1-\sqrt{3})}{(1-\sqrt{3})}$$

Den.  $25 + 10\sqrt{5} - 10\sqrt{5} - 4\sqrt{25} = 5$

Den:  $1 - \sqrt{3} + \sqrt{3} - \sqrt{9} = -2$

Num:  $6 - 6\sqrt{3} - \sqrt{2} + \sqrt{6}$

Final answers:  $5+2\sqrt{5}$  and  $\frac{6-6\sqrt{3}-\sqrt{2}+\sqrt{6}}{-2}$

Algebra 2

Quiz: Simplifying Radicals

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

Simplify each expression. Make sure all answers are in SIMPLEST FORM!!!

Put answer on line provided

$$1) \sqrt[3]{128x^5y^4}$$

Factorization tree for 128: 128 → 64 × 2 → 8 × 8 × 2 → 2 × 2 × 2 × 2 × 2 × 2 × 2

Factorization tree for x<sup>5</sup>: x × x × x × x × x

Factorization tree for y<sup>4</sup>: y × y × y × y

Final answer:  $4xy\sqrt[3]{2x^2y}$

$$2) \sqrt[4]{64x^6y^{10}}$$

Factorization tree for 64: 64 → 8 × 8 → 4 × 2 × 4 × 2 → 2 × 2 × 2 × 2 × 2 × 2

Factorization tree for x<sup>6</sup>: x × x × x × x × x × x

Factorization tree for y<sup>10</sup>: y × y × y × y × y × y × y × y × y × y

Final answer:  $2xy^2\sqrt[4]{4x^2y^2}$

$$3) \sqrt{4x^2y^3} \cdot \sqrt{8x^3y^6}$$


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$$4) \frac{\sqrt[3]{81x^{10}y^8}}{\sqrt[3]{3xy}}$$


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$$5) (6 + 2\sqrt{75}) + (-5 - 3\sqrt{108})$$

$$6 + 2\sqrt{75} - 5 - 3\sqrt{108}$$

$$6 + 10\sqrt{3} - 5 - 18\sqrt{3}$$

$$1 - 8\sqrt{3}$$

$$\sqrt{75}$$

$$25^1 3$$

$$(55)$$

$$\sqrt{108}$$

$$36^1 3$$

$$(66)$$

$$6) (4 - 6\sqrt{18}) - (-3 - 7\sqrt{50})$$

$$4 - 6\sqrt{18} + 3 + 7\sqrt{50}$$

$$4 - 18\sqrt{2} + 3 + 35\sqrt{2}$$

$$7 + 17\sqrt{2}$$

$$\sqrt{18}$$

$$9^1 2$$

$$(33)$$

$$\sqrt{50}$$

$$25^1 2$$

$$(55)$$

$$7) (4\sqrt{2}+5)(3-6\sqrt{2})$$

$$12\sqrt{2} - 24\sqrt{4} + 15 - 30\sqrt{2}$$

-48

$$\underline{-18\sqrt{2} - 33}$$

$$8) 2\sqrt{6}(4\sqrt{3}-5\sqrt{2})$$

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$$9) \frac{2}{4+\sqrt{2}} \cdot \frac{4-\sqrt{2}}{4-\sqrt{2}}$$

Den:

$$16 - 4\sqrt{2} + 4\sqrt{2} - \sqrt{4}$$

14

$$\frac{12(4-\sqrt{2})}{714}$$

$$\frac{4-\sqrt{2}}{7}$$

$$10) \frac{6-\sqrt{2}}{2+\sqrt{5}} \cdot \frac{2-\sqrt{5}}{2-\sqrt{5}}$$

Den.  $4 - \sqrt{25} = -1$

$$\frac{6 - 3\sqrt{5} - 2\sqrt{3} + \sqrt{15}}{-1}$$

$$\underline{-6 + 3\sqrt{5} + 2\sqrt{3} - \sqrt{15}}$$

